



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/894,017	06/28/2001	Yoshiaki Ikoma	Hitachi-0019	4983

7590 03/25/2004

KNOBLE & YOSHIDA LLC
Suite 1350
Eight Penn Center
1628 John F. Kennedy Blvd.
Philadelphia, PA 19103

EXAMINER

CURS, NATHAN M

ART UNIT	PAPER NUMBER
----------	--------------

2633

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/894,017

Applicant(s)

IKOMA ET AL.

Examiner

Nathan Curs

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-32 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 15, 19-22, 31 and 32 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for combining and separating wavelengths using a multiplexer and demultiplexer or add/drop modules, does not reasonably provide enablement for combining and separate wavelengths using an optical switch matrix or optical selector. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

Regarding claim 15, the applicant discloses client side O/E and E/O converters that convert to or from the client predetermined wavelength, but the applicant does not disclose the claimed client side O/E and E/O (claimed first O/E and second E/O) that convert to and from a plurality of client wavelengths.

Regarding claims 19 and 20, the applicant discloses a demultiplexer that separates wavelengths (fig. 7, element 7-6) and inputs the individual wavelengths to an optical switch matrix that switches individual wavelengths (fig. 7, element 3-1), and a multiplexer that combines the individual outputs of the switch matrix (fig. 7, element 7-7); but the applicant does not disclose an optical switch matrix that separates and combines wavelengths.

Regarding claims 21, the applicant discloses wavelengths being separated by a demultiplexer (fig. 6, element 7-6) or add/drop module (fig. 6, element 7-12) and then sent to an

Art Unit: 2633

optical selector (fig. 6, element 7-8) that selects between already separated wavelengths; but the applicant does not disclose the claimed optical selector that separates wavelengths.

Regarding claim 22, the applicant discloses an optical coupler that sends a signal into two optical paths (fig. 6, element 7-9), but the applicant does not disclose the claimed optical selector than combines wavelengths.

Regarding claims 31 and 32, the applicant discloses determining transmission quality for each of the optical wavelengths as claimed in claim 30, but the applicant does not disclose multiplexing a plurality of wavelengths and determining the transmission quality for a combination of the wavelengths.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 recites the limitation "the predetermined sequence of the 0 and 1 signals".

There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2633

6. Claims 1, 5, 6, 10, 11, 14, 16-18 and 23-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi et al. (US Published Patent Application No. 10/38290) in view of Yoshida et al. (US Patent No. 6480308).

Regarding claim 1, Kikuchi et al. disclose an optical network system with quality control function characterized in that in an optical network system wherein a signal to be transmitted is converted to an optical signal of a prescribed wavelength and transmitted over an optical transmission path by a transmit-end wavelength converter (fig. 6 and paragraph 0008); and said optical signal from said optical transmission path is received and wavelength-converted by a receive-end wavelength converter, for regenerating the signal to be transmitted (fig. 7 and paragraph 0010), the optical network system comprising: said transmit-end wavelength converter for a transmit end with a first transponder further comprising: an optical signal input unit for inputting an optical signal to be transmitted (paragraphs 0008 and 0009); and a receive-end wavelength converter at the receive end (paragraph 0010). Kikuchi et al. discloses channel quality control using channel overhead (fig. 18 and paragraphs 0121 and 0122), but does not disclose quality control using a test signal and Kikuchi et al. disclose that the client signal and system transponder overhead schemes must be compatible. Yoshida et al. disclose an optical transponder comprising a test signal generator circuit ultimately connected to an optical signal input unit for generating a test signal for testing optical transmission quality (fig. 2, fig. 3 and col. 8, lines 31-37); an insertion circuit connected to said optical signal input unit and said test signal generator circuit for outputting an output signal by selectively inserting the test signal from said test signal generator circuit in the optical signal for the optical transmission quality in a transmission path formed between the transmit end and a receive end (fig. 2, element 1 and col. 7, lines 6-10); and a converter connected to said insertion circuit for converting the output signal of said insertion circuit to an optical wavelength (fig. 2, element 4 and col. 7, lines 1-5); and a

Art Unit: 2633

receive-end wavelength converter at the receive end with a second transponder further comprising: an extraction circuit for selectively extracting the test signal in the optical signal from said transmission path and a test comparison circuit connected to said extraction circuit for determining the optical transmission quality based on the test signal extracted by said extraction circuit (fig. 2, element 9 and col. 7, lines 26-63 and col. 10, line 42 to col. 11, line 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to insert the test signal function units taught by Yoshida et al. into the electrical signal portion of the original transponder of Kikuchi et al. as an switched test signal, in order to provide quality control without requiring extra bandwidth for channel overhead and without requiring that the client signal and system transponder overhead schemes be compatible.

Regarding claim 5, Kikuchi et al. disclose that if the quality of the transmission path is less than a predetermined transmission path quality level, another transmission path is established and quality is assessed for said another transmission path (figs. 19 and 20 and paragraphs 0123 to 0126). Kikuchi et al. disclose quality control based on channel overhead and do not disclose a switched test signal for use in assessing the quality of the path prior to establishing the transmission path. Yoshida et al. disclose a switch for initiating the test signal comparison for assessing the quality of a transmission path prior to establishing the transmission path (fig. 2, element 1 and col. 10, line 57 to col. 11, line 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the selector and test signal quality control taught by Yoshida et al. with the transponder of Kikuchi et al. for the reasons stated for claim 1 and to use the switched test signal, as taught by Yoshida et al., in order to determine the quality of the transmission path, and if necessary establish another transmission path, as taught by Kikuchi et al.

Art Unit: 2633

Regarding claim 6, Kikuchi et al. disclose an optical transponder in connection with a client line and an optical transmission line, comprising: a first optical to electronic (O/E) converter for converting an optical signal from the client line to an electronic signal (fig. 2, elements 113 and paragraph 0057); a first electronic to optical (E/O) converter for converting the electronic signal to an optical signal to be transmitted in the optical transmission line (fig. 2, element 114 and paragraph 0057); a second optical to electronic (O/E) converter for converting the optical signal from the optical transmission line an electronic signal (fig. 2, element 103 and paragraph 0056), wherein the transponder determines quality of transmission in the optical transmission line (fig. 18 and paragraphs 0121 and 0122); and a second electronic to optical (E/O) converter for converting the electronic signal to generate the optical signal to the client line (fig. 2, elements 104 and paragraph 0056). Kikuchi et al. disclose channel quality control using channel overhead, but do not disclose a test signal unit between the O/E and E/O converters for selecting a test signal to and from the electronic signal for quality control and Kikuchi et al. disclose that the client signal and system transponder overhead schemes must be compatible. Yoshida et al. disclose a transponder with an electrical signal testing units for quality control where the test signal is selected to generate a test-signal-contained electronic signal and then the electrical signal is converted to optical for transmission (fig. 2, elements 1 and 4 and col. 7, lines 1-10); and also disclose O/E conversion at the received side where the electrical output of the O/E is connected to said signal testing unit (fig. 2, elements 6, 7, 8 and 9 and col. 7, lines 11-38). It would have been obvious to one of ordinary skill in the art at the time of the invention to insert the test signal function units taught by Yoshida et al. into the electrical signal portion of the original transponder between the O/E and E/O converters of Kikuchi et al. to provide an switched test signal, in order to provide quality control without requiring extra bandwidth for

Art Unit: 2633

channel overhead and without requiring that the client signal and system transponder overhead schemes be compatible.

Regarding claim 10, Kikuchi et al. in view of Yoshida et al. disclose the optical transponder according to claim 6 wherein said signal testing unit further includes a selection unit for selecting the electronic test signal (Yoshida et al.: fig. 2, element 1).

Regarding claim 11, Kikuchi et al. in view of Yoshida et al. disclose the optical transponder according to claim 6 wherein said signal testing unit further includes a signal comparison unit for comparing the electronic test signal to a known set of predetermined test signals (Yoshida et al.: fig. 2, element 8 and col. 7, lines 45-49).

Regarding claim 14, Kikuchi et al. in view of Yoshida et al. disclose the optical transponder according to claim 6 wherein said first O/E converter converts from the optical signal at a predetermined single wavelength and said second O/E converter converts from the optical signal at a plurality of wavelengths, said first E/O converter converting to the optical signal at the predetermined single wavelength and said second E/O converter converting to the optical signal at a plurality of wavelengths (Kikuchi et al.: fig. 2, elements 103, 104, 113, and 114 and paragraphs 0056 and 0057), where it would have been obvious to one of ordinary skill in the art at the time of the invention that a converter converting to or from a plurality of wavelengths could convert to or from a predetermine single wavelength. In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art a prima facie case of obviousness exists.

Regarding claim 16, Kikuchi et al. disclose an optical signal network in connection with client lines and an optical network transmission line, a plurality of nodes (fig. 1, elements 141-1 and 141-2) each connected to a corresponding one of the client lines (fig. 1, elements 140-n and 150-n) and the optical network transmission line (fig. 1, element 144), the client lines each

Art Unit: 2633

having an optical signal at a predetermined optical wavelength (fig. 1 and paragraph 0006), the optical network transmission line having an optical signal at a plurality of multiplexed wavelengths (fig. 1 and paragraph 0006), each of said nodes comprising: an optical wavelength separator connected to the optical network transmission line for separating the optical signal at a desired wavelength (fig. 1, element 146 and paragraph 0007); an optical wavelength combiner connected to the client lines and the optical network transmission line for combining the optical signals at the multiplexed wavelengths (fig. 1, element 145 and paragraph 0006); and a transponder connected to said optical wavelength separator and said optical wavelength combiner for converting the optical signal at a first wavelength to a second wavelength (paragraphs 0005 and 0006), said transponder further comprising a set of optical-to-electronic converters and electronic-to-optical converters (fig. 2 and paragraphs 0056 and 0057). Kikuchi et al. disclose channel quality control using channel overhead (fig. 18 and paragraphs 0121 and 0122), but do not disclose a transmission quality testing unit connected between said optical-to-electronic converter and said electronic-to-optical converter for testing a transmission quality of the optical network transmission line. Yoshida et al. disclose a transmission quality testing unit selectively connected after an optical-to-electronic converter and before an electronic-to-optical converter for testing a transmission quality of the optical network transmission line (fig. 2, elements 1, 4, 6, 7, 8 and 9 and col. 7, lines 1-38). It would have been obvious to one of ordinary skill in the art at the time of the invention to insert the test signal function units taught by Yoshida et al. into the electrical signal portion of the original transponder between the O/E and E/O converters of Kikuchi et al. to provide an switched test signal, in order to provide quality control without requiring extra bandwidth for channel overhead and without requiring that the client signal and system transponder overhead schemes be compatible.

Art Unit: 2633

Regarding claim 17, Kikuchi et al. in view of Yoshida et al. disclose the optical signal network according to claim 16 wherein said optical wavelength separator is an optical demultiplexer (Kikuchi et al.: fig. 1, element 146 and paragraph 0007).

Regarding claim 18, Kikuchi et al. in view of Yoshida et al. disclose the optical signal network according to claim 16 wherein said optical wavelength combiner is an optical multiplexor (Kikuchi et al.: fig. 1, element 145 and paragraph 0006).

Regarding claim 23, Kikuchi et al. in view of Yoshida et al. disclose the optical signal network according to claim 16 wherein said optical wavelength separator is an optical wavelength add/drop module (Kikuchi et al.: fig. 13 and paragraphs 0099 to 0101).

Regarding claim 24, Kikuchi et al. in view of Yoshida et al. disclose the optical signal network according to claim 16 wherein said optical wavelength combiner is an optical wavelength add/drop module (Kikuchi et al.: fig. 13 and paragraphs 0099 to 0101).

Regarding claim 25, Kikuchi et al. in view of Yoshida et al. disclose the optical signal network according to claim 16 wherein a plurality of said transponders receives the optical signal from said optical wavelength separator at any combination of the desired wavelengths (Kikuchi et al.: fig. 13 and paragraphs 0099 to 0101).

Regarding claim 26, Kikuchi et al. in view of Yoshida et al. disclose the optical signal network according to claim 16 wherein a plurality of said transponders receives the optical signal from the client lines at any combination of the desired wavelengths to output to said optical wavelength combiner (Kikuchi et al.: fig. 8 and paragraph 0080 and fig. 9 and paragraph 0085).

Regarding claim 27, Kikuchi et al. disclose a method of assessing transmission quality in an optical network having optical transmission lines and client lines connected to the optical transmission lines, comprising: converting an optical signal at a first wavelength from one of the

Art Unit: 2633

client lines to an electrical signal in a transponder (fig. 2, elements 113 and paragraph 0057); converting the electrical signal to the optical signal at a second wavelength in the transponder to be transmitted in the optical transmission lines (fig. 2, element 114 and paragraph 0057); converting the optical signal at the second wavelength from the optical transmission lines to the electrical signal in the transponder (fig. 2, element 103 and paragraph 0056); and converting the electrical signal to the optical signal at the first wavelength in the transponder to be outputted to the one of the client lines (fig. 2, element 104 and paragraph 0056). Kikuchi et al. do not disclose adding to the electrical signal a test signal in the transponder on the transmit side and determining transmission quality based upon the test signal in the transponder on the receive side. Yoshida et al. disclose a transmission quality testing unit selectively connected after an optical-to-electronic converter and before an electronic-to-optical converter for testing a transmission quality of the optical network transmission line (fig. 2, elements 1, 4, 6, 7, 8 and 9 and col. 7, lines 1-38). It would have been obvious to one of ordinary skill in the art at the time of the invention to insert the test signal function units taught by Yoshida et al. into the electrical signal portion of the original transponder between the O/E and E/O converters of Kikuchi et al. to provide an switched test signal, in order to provide quality control without requiring extra bandwidth for channel overhead and without requiring that the client signal and system transponder overhead schemes be compatible.

Regarding claim 28, Kikuchi et al. in view of Yoshida et al. disclose the method of testing transmission quality in an optical network according to claim 27 further comprising selecting the client lines based upon the transmission quality (Kikuchi et al.: fig. 8 and paragraphs 0080 and 0081).

Regarding claim 29, Kikuchi et al. in view of Yoshida et al. disclose the method of testing transmission quality in an optical network according to claim 27 further comprising selecting the

Art Unit: 2633

optical transmission lines based upon the transmission quality (Kikuchi et al.: figs. 19 and 20 and paragraphs 0123 to 0126).

Regarding claim 30, Kikuchi et al. in view of Yoshida et al. disclose the method of testing transmission quality in an optical network according to claim 27 further comprising multiplexing the optical signal at a plurality of wavelengths, wherein said transmission quality is determined for each of the wavelengths of the optical signal (Kikuchi et al.: fig. 18 and paragraphs 0121 and 0122).

7. Claims 2, 3, and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi et al. (US Published Patent Application No. 10/38290) in view of Yoshida et al. (US Patent No. 6480308) as applied to claims 1, 5, 6, 10, 11, 14, 16-18 and 23-30 above, and further in view of Stocker (US Patent No. 5235645).

Regarding claim 2, Kikuchi et al. in view of Yoshida et al. disclose the optical network system with quality control function according to claim 1, where the test signal is identified over the data signal by a pattern starting with a sequence of four 1 bits (col. 7, line 54 to col. 8, line 13) but do not disclose that said test signal generator circuit further comprises a pseudo-random signal generator circuit. Stocker discloses a data scrambler where a pseudo-random signal is generated in order to produce a pseudo-random signal where signal power fluctuations are avoided by scrambling occurrences of continuous ones or zeroes (col. 1, lines 11-25 and lines 46-49) and where the first bits of the sequence are not scrambled so the frame can be identified (col. 4, lines 22-40). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the data scrambler of Stocker with the test pattern generator of Kikuchi et al., to create a pseudo-random test signal for the system of Kikuchi et al., where the first bits of

Art Unit: 2633

the sequence identify the signal and the pseudo-random nature of the remaining signal prevents power fluctuations caused by continuous ones or zeroes.

Regarding claim 3, Kikuchi et al. in view of Yoshida et al. disclose the optical network system with quality control function according to claim 1, but do not disclose that said test signal generator circuit further comprising: an 'all 1s and all 0s' generator circuit for generating 'all 1s and all 0s' signals; and a scrambler circuit connected to said 'all 1s and all 0s' generator circuit for scrambling the 'all 1s and all 0s' signals to generate the scrambled test signal. Stocker discloses a data scrambler where a pseudo-random signal is generated in order to produce a pseudo-random signal where signal power fluctuations are avoided by scrambling a series of continuous ones or zeroes (col. 1, lines 11-25 and lines 46-49). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a simple 'all 1s and all 0s' generator circuit for the test pattern source of Kikuchi et al., based on the teaching of Stocker of converting a sequence of 1s and 0s to a random sequence, in order to provide a simple 1s and 0s generator source for test signal generation, followed by the data scrambler of Stocker (and descrambler of Stocker at the receive side) to create a pseudo-random test signal for the system of Kikuchi et al., where the pseudo-random nature of the signal prevents power fluctuations caused by continuous ones or zeroes.

Regarding claim 7, Kikuchi et al. in view of Yoshida et al. disclose the optical transponder according to claim 6 but do not disclose said signal testing unit further includes a random signal generation unit for generating a random signal as the electronic test signal. Stocker discloses a electronic data scrambler where a pseudo-random signal is generated in order to produce a pseudo-random signal where signal power fluctuations are avoided by scrambling occurrences of continuous ones or zeroes (col. 1, lines 11-25 and lines 46-49). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the

Art Unit: 2633

data scrambler of Stocker with the test pattern generator of Kikuchi et al., to create a pseudo-random test signal for the system of Kikuchi et al., where the pseudo-random nature of the signal prevents power fluctuations caused by continuous ones or zeroes.

Regarding claim 8, Kikuchi et al. in view of Yoshida et al. disclose the optical transponder according to claim 6 but do not disclose said signal testing unit further includes a predetermined signal generation unit for generating a predetermined sequence of 0 and 1 signals. Stocker discloses a data scrambler where a pseudo-random signal is generated in order to produce a pseudo-random signal where signal power fluctuations are avoided by scrambling a series of continuous ones or zeroes (col. 1, lines 11-25 and lines 46-49). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a simple 'all 1s and all 0s' generator circuit for the test pattern source of Kikuchi et al., based on the teaching of Stocker of converting a sequence of 1s and 0s to a random sequence, in order to provide a simple 1s and 0s generator source for test signal generation, followed by the data scrambler of Stocker, to create a pseudo-random test signal for the system of Kikuchi et al., where the pseudo-random nature of the signal prevents power fluctuations caused by continuous ones or zeroes.

Regarding claim 9, Kikuchi et al. in view of Yoshida et al. and further in view of Stocker disclose the optical transponder according to claim 8 wherein said signal testing unit further includes a clock unit for generating a clock signal (Stocker: fig. 1, element CLK and col. 2, lines 42-45) and a scrambling unit selectively connected to said clock units for scrambling the predetermined sequence of the 0 and 1 signals (Stocker: col. 2, lines 7-17). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a plurality of clock signals for the timing of the scrambler circuit in order to adapt to various transmission rates.

Art Unit: 2633

8. Claims 12 and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi et al. (US Published Patent Application No. 10/38290) in view of Yoshida et al. (US Patent No. 6480308) as applied to claims 1, 5, 6, 10, 11, 14, 16-18 and 23-30 above, and further in view of Varian (US Patent No. 5392289).

Regarding claim 12, Kikuchi et al. in view of Yoshida et al. disclose the optical transponder according to claim 6, where transmission quality is assessed based on receiving a test pattern correctly, but do not disclose that said signal testing unit further includes an error count unit for counting a number of errors or bit errors based upon the electronic test signal. Varian discloses a signal generating system for generating a signal, randomizing the signal, transmitting the signal, receiving the signal and determining the number of errors at the receiver (col. 2, lines 41-53 and col. 3, lines 42-59). It would have been obvious to one of ordinary skill in the art at the time of the invention to add the signal generator and signal receiver of Varian to the system of Kikuchi et al. in view of Yoshida et al. to generate the test pattern signal, and receive the transmitted test pattern signal, in order to provide a more detailed error rate indicator, since determining a specific error rate is not disclosed for the general error detection system of Yoshida et al.

Regarding claim 13, Kikuchi et al. in view of Yoshida et al. and further in view of Varian disclose the optical transponder according to claim 12 wherein said signal testing unit further includes a clock extraction unit for extracting the clock signals for generating an extracted clock signal (Varian: fig. 3 and col. 12, line 8 to col. 13, line 4 and col. 13, lines 54-62) and a de-scrambling unit connected to said clock extraction unit for descrambling the signal based upon the extracted clock signal (Varian: fig. 3 and col. 13, lines 34-46).

Allowable Subject Matter


Art Unit: 2633

9. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (703) 305-0370. The examiner can normally be reached M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (703) 305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.


JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600